



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,040	12/11/2003	Takeshi Nakamura	36856.1168	8416

54066 7590 07/13/2007
MURATA MANUFACTURING COMPANY, LTD.
C/O KEATING & BENNETT, LLP
8180 GREENSBORO DRIVE
SUITE 850
MCLEAN, VA 22102

EXAMINER

ENSEY, BRIAN

ART UNIT	PAPER NUMBER
----------	--------------

2615

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

07/13/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JKEATING@KBIPLAW.COM
uspto@kbiplaw.com

Office Action Summary	Application No. 10/733,040	Applicant(s) NAKAMURA, TAKESHI	
	Examiner Brian Ensey	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 3, 6, 8, 10, 13, 16, 18 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 5, 7, 9, 11, 12, 14, 15, 17 and 19 is/are rejected.
- 7) ☒ Claim(s) 4, 9, 14, 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 1, 2, 4, 5, 7, 9, 11, 12, 14, 15, 17 and 19 in the reply filed on 11/08/06 is acknowledged.

Claim Objections

Claims 4, 9, 14 and 19 are objected to because of the following informalities: The aforementioned claims depend from claims which have been withdrawn as a result of a nonelected species. Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1, 2, 4, 5, 7, 9, 11, 12, 14, 15, 17 and 19 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a credible asserted utility or a well established utility.

The invention teaches a main speaker and one or more subordinate speakers where the subordinate speaker(s) are of a greater diameter than the main speaker, the subordinate speaker(s) are driven with a smaller amplitude than the main speaker, and all the speakers are mounted in a common plane to produce a pseudo-spherical wave. This is allegedly accomplished by the propagation speed of the subordinate speaker(s) being less than the propagation speed of



Art Unit: 2615

the main speaker. However, since the “speakers are vibrated in a frequency range of piston vibration and are in phase with each other” (See claims 1 and 11 and specification page 3, paragraph 3), therefore, since the propagation speed is dependent on the wavelength and frequency of the wave not the amplitude of the wave the wavelength and frequency of the waves will be the same and the wave front produced will be a linear wave and the propagation speed will be the same. Furthermore, wave propagation speed is greatly determined by the medium through which the wave is moving and in the current application the medium is assumed to be air since no other medium is disclosed. Generation of spherical wavefronts can be achieved through input delays of speaker arrays and through physical positioning of speakers in various planes and locations. Therefore, the generation of a pseudo-spherical wavefront as disclosed and claimed by the applicant is not either a credible asserted utility or a well established utility.

Claims 1, 2, 4, 5, 7, 9, 11, 12, 14, 15, 17 and 19 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a credible asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

Response to Arguments

Applicant's arguments filed 4/19/07 have been fully considered but they are not persuasive.

The Examiner would like to thank Attorney Bennett for the phone interview on 5/18/07 and the information provided in an attempt to further explain the applicant's invention.

With respect to the applicant's argument that *the invention is clearly disclosed in the second and third full paragraphs on page 7 of the originally filed specification*, the Examiner disagrees.

In the second full paragraph on page 7, the applicant states "the vibration speed of the air particles produced by the vibration of a speaker is defined as the propagation speed of a sound wave" and "the propagation speed of a sound wave produced by the vibration of the subordinate speaker 12 is substantially one-half of the vibration speed of a sound wave produced by the vibration of the main speaker 11." The Examiner submits that the diaphragms of both the main speaker and the subordinate speaker will be vibrated at the same speed when a signal of the same frequency and phase is applied to the diaphragms at the same time. The Examiner understands that since the input amplitude of the subordinate speaker is one half the amplitude of the input amplitude of the main speaker and concludes that this will result in the vibrational displacement of the diaphragms along the axis of vibration to be different. Specifically, the amplitude of the vibration of the subordinate speaker's diaphragm will be less than the amplitude of the vibration of the main speaker's diaphragm but it is not clear that the displacement will be one half. Neither the claims nor the specification provide a clear explanation of how this difference in vibrational amplitude in combination with the difference in diaphragm size will produce a propagation speed of the sound wave produced of the subordinate speaker to be less than a propagation speed of a sound wave produced by the main speaker. Since the propagation rate (speed of the sound wave) is determined by the frequency and phase of the wave front, the Examiner does not agree that a pseudo-spherical wave front will be produced.

With respect to the applicants disclosure on page 7, lines 9-11 that *the subordinate speaker 12 is vibrated so as to have the same phase and about one-half the amplitude as the main speaker 11 in the non-vibration area away from the vibration area which is vibrated by the main speaker 11*, the Examiner is not clear on the where *the non-vibration area away from the vibration area which is vibrated by the main speaker*, is physically located and how this affect the propagation speed of the sound wave.

With respect to the applicant's argument on page 9, the last line of the applicant's arguments *that a linear wave would not be produced*, the Examiner does not agree since the main speaker and the subordinate speaker are vibrated in a frequency range of piston vibration and are in phase. However, the Examiner concedes that since the amplitude of vibration of the speaker diaphragms are different that is possible that a non-linear wave front may possibly be generated but it is not clear that this wavefront would necessarily be pseudo-spherical or how this wavefront would be shaped. The Examiner submits that the applicant does not provide any conclusive evidence of a direct correlation between the input amplitude and the output propagation speed of the sound wave produced by the vibration of the speakers and definitely does not provide any evidence that a pseudo-spherical wavefront would be produced even if the propagation speed of the sound waves produced is even assumed to be different for the subordinate and main speakers.

Therefore, the Examiner's rejection under 35 U.S.C. 101 and 35 U.S.C. 112 are maintained.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Ensey whose telephone number is 571-272-7496. The examiner can normally be reached on Monday - Friday 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
P.O. Box 1450
Alexandria, Va. 22313-1450

Or faxed to:

(571) 273-8300, for formal communications intended for entry and for informal or draft communications, please label "PROPOSED" or "DRAFT".

Art Unit: 2615

Hand-delivered responses should be brought to:

Customer Service Window
Randolph Building
401 Dulany Street
Arlington, VA 22314

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



BRIAN ENSEY
PRIMARY EXAMINER

6128107